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Title**A wound dressing****Prior art**

- 5 Dressings for wounds are desirably flexible and conformable and capable of removal in one piece after use without trauma to the patient and without leaving residual fragments of the dressing in the wound. Such dressings are commonly in the form of a textile sheet and consequently have low mechanical strength and integrity. A well-known material used is polysaccharides such as CMC or
- 10 alginates. However, such fibres are weak fibres particularly when wetted and accordingly, a balance must be found between the conflicting desires for mechanical strength and integrity requiring high intensity needling and/or high basis density of the fibrous product.

15 Brief description of the invention

The invention relates to a wound dressing comprising a web of gel-forming fibres or fibres soluble in wound exudates, attached to a reinforcing layer.

- 20 The object of the invention is to provide a soft and flexible, easy handled, non-sticking and lightweight wound dressing for the use on low to high exudating wounds.

- Another object of the invention is to provide an excellent release layer for donating active ingredients to a wound bed.

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Detailed description of the invention

- The invention relates to a wound dressing comprising a web of gel-forming fibres or fibres soluble in wound exudates, attached to a reinforcing layer wherein the density of the web is in the range of 5-50 g/m².

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The web may be in the form of a three-dimensional structure such as an entangled web or the web may be a substantially two-dimensional structure such as a fibrous sheet or mat.

- 5 The dressing may be used by itself or it may be used in combination with or as a part of a further dressing. Thus, the dressing of the invention may serve as a wound contacting layer or a release layer for donating one or more active ingredients to a wound.
- 10 In one embodiment of the invention the dressing may be in the form of a cavity filler.

- The dressing of the invention may be suitable for use on a broad range of wounds, from low to high exudating wounds. When used on high exudating
- 15 wounds the dressing may preferably be combined with a further dressing comprising an absorbent layer.

- The fibres used in the dressing of the invention are gelable or soluble in wound exudate. Compared to commonly known alginate dressings the dressing of the
- 20 invention comprises a low amount of gelable or soluble fibres combined with a reinforcing and strength giving material.

- The dressing of the invention provides a skin-friendly surface and the manufacture of the dressing is cost-efficient. A high permeability is obtained by
- 25 reducing the risk of gel-blocking. Furthermore, the dressing is easy to remove in one piece, without leaving undesired residuals in the wound area.

- A layer of gellable/soluble fibre with a density below 100 g/m² may not have the strength to be manufactured or when used on a wound, to be removed in one
- 30 piece from the wound. Therefore a reinforcing layer is added to the fibres. The cohesive properties of this reinforcing layer are both to ensure the processability

of the lightweight product and to ensure easy dressing change by removal in one piece.

- 5 The fibres are present in an amount providing a density of the web of 5 to 50 g/m², more preferred 10 to 40 g/m² and most preferred in the amount of 15 to 30 g/m².

In one embodiment of the invention the density of the web is 5-20 g/m².

- 10 The fibres of the web may be selected from the group consisting of polysaccharide or polyacrylate fibres, preferably alginate or CMC fibres or mixtures thereof.

- 15 The web may further comprise super absorbing particles or fibres.

- 20 In one embodiment of the invention the web is attached to the reinforcing layer by needling. Alternatively, the web may be attached by thermal bonding or by the use of adhesive means. In another embodiment the attachment of the web to the reinforcing layer may be provided by a combination of the above-mentioned means.

- 25 By incorporating a reinforcing layer into the dressing a dressing with high cohesion is achieved in dry as well as wet condition. Furthermore, the typical use of cross folding of the fibres during the manufacture of the web in order to enhance the strength may be avoided.

- 30 The reinforcing layer may be any suitable layer providing the dressing with the desired strength. It may be in the form of a net, a foam, a film, a knit, a non-woven or woven material.

In a preferred embodiment of the invention the reinforcing layer is a non-woven net, preferably comprising polyethylene.

The reinforcing layer material is selected in such a manner, that the exudate can permeate through the layer.

- 5 The density of the reinforcing layer may be in the range of 5 to 200 g/m², preferably 10 to 100 g/m², more preferably 15 to 50 g/m², and most preferably 20 to 40 g/m²

- 10 *In one embodiment of the invention the dressing may comprise one or more active ingredients.*

- 15 It is advantageous to provide a dressing of the invention with components for treatment or prophylaxis of formation of wounds and/or skin abnormalities, e.g. with emollients or an active constituent e.g. retinoids for treating or preventing formation of psoriasis, eczema, callous skin, corns, insect bites, acne or blisters. The dressing of the invention may also contain medicaments such as bacteriostatic or bactericide compounds, e.g. iodine, iodopovidone complexes, chloramine, chlorhexidine, silver salts, zinc or salts thereof, tissue-healing enhancing agents, e.g. RGD tripeptides and the like, enzymes for cleansing of wounds, e.g. pepsin, trypsin and the like, pain relieving agents, odour reducing agents, such as charcoal, or agents having a cooling effect which is also considered an aspect of the invention.

- 25 In a preferred embodiment the dressing comprises an antibacterial agent. Preferably the antibacterial agent is a source of silver, such as an Ag-complex or an Ag-salt.

- 30 In a particularly preferred embodiment the dressing comprises Ag-Ca-alginate or Ag-Na-CMC.

The wound dressing may be produced by processing the gel forming/soluble fibres into at least one layer of carded fibres having a weight of maximum 50

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g/m². The fibre layer may then be attached to the reinforcing material, e.g. by needling or bonding.

Examples

- 5 Silver calcium alginate fibres (produced in accordance with patent GB2370226) with a silver content of 10 % was carded to a web having a density of 15 g/m². The web was placed on a polyethylene non-woven layer with a density of 30 g/m². The alginate layer was attached to the polyethylene layer by a conventional needling process to achieve a coherent web, which was cut into wound
- 10 dressings.

The dressing showed antibacterial effect and was easily removed from the wound in one piece.

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Claims:

1. A wound dressing comprising a web of gel-forming fibres or fibres soluble in wound exudates, attached to a reinforcing layer wherein the density of the web is
5 In the range of 5-50 g/m²
2. A wound dressing according to claim 1 wherein the fibres are selected from the group consisting of polysaccharide or polyacrylate fibres, preferably alginate or CMC fibres or mixtures thereof.
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3. A wound dressing according to claim 1 or 2 wherein the web is attached to the reinforcing layer by needling.
4. A wound dressing according to any of claims 1-3 wherein the web is attached
15 to the reinforcing layer by thermal bonding.
5. A wound dressing according to any of claims 1-4 wherein the web is attached to the reinforcing layer by adhesive means.
- 20 6. A wound dressing according to any of claims 1-5 wherein the reinforcing layer is in the form of a net, a foam, a film, a non-woven or woven material.
7. A wound dressing according to any of claims 1-6 wherein the dressing comprises one or more active ingredients.
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8. A wound dressing according to claim 7 wherein the active ingredient comprises an antibacterial agent.
9. A wound dressing according to any of claim 1-8 wherein the dressing
30 comprises Ag-Ca-alginate and/or Ag-Na-CMC.

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Abstract

A wound dressing

- 5 A wound dressing comprising a web of gel-forming fibres or fibres soluble in wound exudates, attached to a reinforcing layer wherein the density of the web is in the range of 5-50 g/m²

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